ORIGINAL

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DOCUMENT DESCRIPTION	DOCUMENT CONTROL NUMBER	DATE RECEIVED
8EHQ-11- 18459	**88120000002**	10\4\11

COMMENTS:

DOES NOT CONTAIN CBI

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SYRGIS®
PERFORMANCE CHEMICALS

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September 22, 2011

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
1201 Constitution Ave., NW
Washington, DC 20004

Re: TSCA 8(e) Submission

Dear Sir/Madam:

The following information is being submitted by Syrgis P Chem ("P Chem") pursuant to U.S. EPA's current policy guidance on information that EPA believes is reportable pursuant to Section 8(e) of the Toxic Substances Control Act. P Chem has made no determination as to whether a significant risk of injury to health or the environment is actually presented by this information.

This submission is based on the results of an aquatic toxicity study for a product that is a mixture consisting primarily of water, methanol and a substance identified as "formaldehyde, polymer with N-(2-aminoethyl)-1,2-ethanediamine, benzylated" (CAS # 70750-07-1). The results of the acute (96-hour) toxicity test with fathead minnows can be summarized as follows:

- No observable effect concentration: 5 mg/L
- Lowest observable effect concentration: 10 mg/L
- Acute (96-hour) LC_{50} concentration: 5.6 mg/L

Further evaluation of this product revealed that the mixture contains other residual substances, including approximately 800 ppm of "free" formaldehyde (i.e., formaldehyde not part of the polymer). P Chem's further evaluation of the mixture led to the conclusion that the results of the aquatic toxicity testing for the mixture are likely associated with the formaldehyde polymer, and not other components or residuals in the mixture.

P.O. Box 977 • 3985 U.S. Highway 287 North • Latexo, TX 75849
Telephone: 936-544-5174 • Fax: 936-544-4958 • www.syrgispc.com
ISO 9001 Certified

CONTAINS NO CBI

SYRGIS®
PERFORMANCE CHEMICALS

If you have any questions regarding this submission, please do not hesitate to call me at 936-544-5174.

Sincerely,

Lois Waits

Lois Waits
Senior VP of Operations/General Manager

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Telephone: 936-544-5174 • Fax: 936-544-4958 • www.syrgispc.com

PACIFIC ECORISK ENVIRONMENTAL CONSULTING & TESTING

Duane Treybig
SYRGIS PChem
3985 US Hwy 287 N
Latexo, TX 75849

May 17, 2011

Duane:

I have enclosed one copy of our report "An Evaluation of the Acute Toxicity of An Industrial Chemical Product ("XC-197")" for testing performed on the sample received at the Pacific EcoRisk laboratory on April 7, 2011. The results of this testing are described below.

Initial Range-Finding Test – Acute (96-hr) Toxicity Testing with Fathead Minnows
Range-finding testing of this product was performed at product concentrations of 0.01, 0.1, 1, 10, 100, and 1000 mg/L. The results of the range-finding test follow:

> There were ***no*** significant reductions in survival at the ≤1 mg/L test concentrations. There was complete mortality of the fish at the ≥10 mg/L test concentrations.

Definitive Test – Acute (96-hr) Toxicity Testing with Fathead Minnows
Based upon the range-finding test response, and upon consultation with you, follow-up 'definitive' testing was performed at XC-197 concentrations of 0.5, 1, 2.5, 5, 10, and 20 mg/L. The results of the definitive test follow:

> The No Observable Effect Concentration (NOEC) was 5 mg/L XC-197 and the Lowest Observable Effect Concentration (LOEC) was 10 mg/L XC-197. The acute (96-hr) LC50 was 5.6 mg/L XC-197.

Please feel free to call me at (707) 207-7760 if you have any questions regarding the performance or interpretation of these tests.

Sincerely,

Scott Ogle Digitally signed by Scott Ogle DN: cn=Scott Ogle, o=Pacific EcoRisk, ou, email=scottogle@pacificecorisk.com, c=US Date: 2011.05.18 14:03:01 -08'00'

R. Scott Ogle, Ph.D.
Principal & Special Projects Director

The test was performed under Lab Order 18260. The test results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report, and only relate to the sample tested. This report shall not be reproduced, except in full, without the written consent of Pacific EcoRisk

An Evaluation of the Acute Toxicity of An Industrial Chemical Product ("XC-197")

Sample received on April 7, 2011

Prepared For:

SYRGIS PChem
3985 US Hwy 287 N
Latexo, TX 75849

Prepared By:

Pacific EcoRisk
2250 Cordelia Rd.
Fairfield, CA 94534

May 2011

PACIFIC ECORISK
ENVIRONMENTAL CONSULTING & TESTING

An Evaluation of the Acute Toxicity of An Industrial Chemical Product ("XC-197")

Sample received on April 7, 2011

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Appendices

1. INTRODUCTION

SYRGIS PChem has contracted Pacific EcoRisk (PER) to perform an acute toxicity evaluation of an industrial chemical product (designated "XC-197"). This evaluation consisted of the US EPA acute (96-hr) toxicity survival test with the fathead minnow (*Pimephales promelas*). Because the expected toxicity of this compound was unknown, this testing was performed in a phased approach consisting of an initial "range-finding" test with test concentrations that progressively increased by orders of magnitude, followed by a subsequent "definitive" test with test concentrations that progressively increased by a factor of two. This report describes the performance of these tests.

2. ACUTE TOXICITY TEST PROCEDURES

The methods used in conducting this toxicity testing followed the guidelines established by the EPA manual "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition" (EPA-821-R-02-012).

2.1 Receipt and Handling of the Industrial Chemical Sample

On April 7, a sample of an industrial chemical ("XC-197") in liquid form was received at the PER testing laboratory in Fairfield, CA. Upon receipt at the testing laboratory, the sample was logged-in, and was stored in the dark at 0-6°C except when being used to prepare test solutions.

2.2 Acute Toxicity Testing with Fathead Minnows – Initial Range-Finding Test

The fathead minnows used in this test were obtained from a commercial supplier (Aquatox). These fish were maintained at 20°C in aerated aquaria containing EPA synthetic moderately-hard water prior to their use in the tests. During this pre-test period, the fish were fed brine shrimp nauplii *ad libitum*.

The Lab Control water for this test consisted of EPA synthetic "moderately hard" water, prepared by addition of reagent-grade chemicals to Type 1 lab water (reverse-osmosis, de-ionized water). Test solutions were prepared by addition of the chemical to the Lab Control medium at a chemical concentration of 1000 mg/L; interim test media concentrations were prepared by appropriate dilutions of the 1000 mg/L solution using the Lab Control water. Water quality characteristics (pH, dissolved oxygen [D.O.], and conductivity) were determined for each treatment test solution prior to the start of the test.

There were 4 replicates at each test treatment, each replicate consisting of 400-mL of test solution in a 600-mL glass beaker. The test was initiated by randomly allocating 10 five-day old

fathead minnows into each replicate. The replicate beakers were then placed in a temperature-controlled room at 20°C under a 16L:8D photoperiod.

Each replicate container was examined daily, and the number of live fish in each was recorded. On Day 2 of the tests, fresh test solutions were prepared and characterized as before. The fish were also fed brine shrimp nauplii on Day 2 of the tests. Later that same day, approximately 80% of the old media in each replicate container was carefully poured out and replaced with the fresh test solution. "Old" water quality characteristics (pH, D.O., and conductivity) were measured for the old test solution that had been discarded from one randomly selected replicate at each treatment.

After 96 (±2) hrs, the test was terminated and the number of live fish in each replicate was determined. The resulting survival data were analyzed to evaluate any impairment due to the "XC-197" product; all statistical analyses were performed using the CETIS® statistical software (TidePool Scientific, McKinleyville, CA).

2.3 Acute Toxicity Testing with Fathead Minnows – Follow-Up Definitive Test

The fathead minnows used in this test were obtained from a commercial supplier (Aquatox). These fish were maintained at 20°C in aerated aquaria containing EPA synthetic moderately-hard water prior to their use in the tests. During this pre-test period, the fish were fed brine shrimp nauplii *ad libitum*.

The Lab Control water for this test consisted of EPA synthetic "moderately hard" water. Based upon the range-finding test response, and upon consultation with SYRGIS PChem staff, the follow-up 'definitive' test of XC-197 was performed at concentrations of 0.5, 1, 2.5, 5, 10, and 20 mg/L. Test solutions were prepared by addition of the chemical to the Lab Control medium at a chemical concentration of 20 mg/L; interim test media concentrations were prepared by appropriate dilutions of the 20 mg/L solution using the Lab Control water. Water quality characteristics (pH, dissolved oxygen [D.O.], and conductivity) were determined for each treatment test solution prior to the start of the tests.

There were 4 replicates at each test treatment, each replicate consisting of 400-mL of test solution in a 600-mL glass beaker. The test was initiated by randomly allocating 10 five-day old fathead minnows into each replicate. The replicate beakers were then placed in a temperature-controlled room at 20°C under a 16L:8D photoperiod.

Each replicate container was examined daily, and the number of live fish in each was recorded. On Day 2 of the tests, fresh test solutions were prepared and characterized as before. The fish were also fed brine shrimp nauplii on Day 2 of the test. Later that same day, approximately 80% of the old media in each replicate container was carefully poured out and replaced with the fresh

test solution. "Old" water quality characteristics (pH, D.O., and conductivity) were measured for the old test solution that had been discarded from one randomly selected replicate at each treatment.

After 96 (±2) hrs, the test was terminated and the number of live fish in each replicate was determined. The resulting survival data were analyzed to evaluate any impairment due to the chemical product; all statistical analyses were performed using the CETIS® statistical software.

3. RESULTS

3.1 Effects of Product "XC-197" on Fathead Minnows – Range-Finding Test

The results of this test are summarized in Table 1. There was 100% survival at the Lab Control treatment. There were ***no*** significant reductions in survival at the ≤1 mg/L test concentrations. There was complete mortality of the fish at the ≥10 mg/L test concentrations.

The test data and summary of statistical analyses for this test are presented in Appendix A.

Table 1. Effects of the chemical product "XC-197" on fathead minnows – Range-finding test.

Test Treatment (mg/L)	Mean % Survival
Lab Control	100
0.01	100
0.1	97.5
1	97.5
10	**0***
100	**0***
1000	**0***
Summary of Key Statistics	
No Observable Effect Concentration (NOEC) =	1 mg/L XC-197
Lowest Observable Effect Concentration (LOEC) =	10 mg/L XC-197

* The response at this test treatment was significantly less than the Lab Control treatment response at $p < 0.05$.

3.2 Effects of Product "XC-197" on Fathead Minnows – Definitive Test

The results of this test are summarized in Table 2. There was 97.5% survival at the Lab Control treatment. There were ***no*** significant reductions in survival at the ≤5 mg/L product concentrations; the No Observable Effect Concentration (NOEC) was 5 mg/L XC-197. There was complete mortality at the 10 mg/L and 20 mg/L concentrations; the Lowest Observable Effect Concentration (LOEC) was 10 mg/L XC-197. The acute (96-hr) LC50 was 5.6 mg/L XC-197.

The test data and summary of statistical analyses for this test are presented in Appendix B.

Table 2. Effects of the chemical product "XC-197" on fathead minnows – Definitive test.

Test Treatment (mg/L)	Mean % Survival
Lab Control	97.5
0.5	100
1	100
2.5	97.5
5	87.5
10	**0***
20	**0***
Summary of Key Statistics	
No Observable Effect Concentration (NOEC) =	5 mg/L XC-197
Lowest Observable Effect Concentration (LOEC) =	10 mg/L XC-197
LC50 =	5.6 mg/L XC-197

* The response at this test treatment was significantly less than the Lab Control treatment response at $p < 0.05$.

4. SUMMARY AND CONCLUSIONS

Evaluation of the acute toxicity of the industrial chemical products "XC-197" was performed for the product sample received at the Pacific EcoRisk laboratory on April 7, 2011. The results of this testing are described below.

Initial Range-Finding Test – Acute (96-hr) Toxicity Testing with Fathead Minnows
Range-finding testing of this product was performed at product concentrations of 0.01, 0.1, 1, 10, 100, and 1000 mg/L. The results of the range-finding test follow:

> There were ***no*** significant reductions in survival at the ≤1 mg/L test concentrations. There was complete mortality of the fish at the ≥10 mg/L test concentrations.

Definitive Test – Acute (96-hr) Toxicity Testing with Fathead Minnows
Based upon the range-finding test response, and upon consultation with you, follow-up 'definitive' testing was performed at XC-197 concentrations of 0.5, 1, 2.5, 5, 10, and 20 mg/L. The results of the definitive test follow:

> The No Observable Effect Concentration (NOEC) was 5 mg/L XC-197 and the Lowest Observable Effect Concentration (LOEC) was 10 mg/L XC-197. The acute (96-hr) LC50 was 5.6 mg/L XC-197.

4.1 QA/QC Summary

Test Conditions - Test conditions (pH, D.O., temperature, etc.) were within acceptable limits for these test organisms.

Negative Control - The biological responses at the Lab Control treatments were within acceptable limits.

Appendix A

Test Data and Summary of Statistical Analyses for the Evaluation of the Acute Toxicity of the Chemical Product "XC-197" on Fathead Minnows – Initial Range-Finding Test

Acute Fish Survival Test — **Pacific EcoRisk**

Batch ID:	02-0237-4609	**Test Type:**	Survival (96h)	**Analyst:**	Kristin Worrell
Start Date:	20 Apr-11 14:30	**Protocol:**	EPA-821-R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	24 Apr-11 12:30	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatox, AR	**Age:**	5

Sample ID:	10-3207-7544	**Code:**	Product	**Client:**	SYRGIS PCHEM
Sample Date:	20 Apr-11 14:30	**Material:**	Freshwater	**Project:**	18260
Receive Date:	20 Apr-11 14:30	**Source:**	SYRGIS Pchem		
Sample Age:	N/A (21 °C)	**Station:**	XC-197		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
12-0166-2604	96h Survival Rate	1	10	3.162	5.38%		Steel Many-One Rank Test

Point Estimate Summary

Analysis ID	Endpoint	Level	mg/L	95% LCL	95% UCL	TU	Method
04-8940-2504	96h Survival Rate	EC10	1.269	N/A	N/A		Linear Regression (MLE)
		EC15	1.361	N/A	N/A		
		EC20	1.438	N/A	N/A		
		EC25	1.507	N/A	N/A		
		EC40	1.698	N/A	N/A		
		EC50	1.824	N/A	N/A		

96h Survival Rate Summary

Conc-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Water Contr	4	1	1	1	1	1	0	0	0.0%	0.0%
0.01		4	1	1	1	1	1	0	0	0.0%	0.0%
0.1		4	0.975	0.9563	0.9937	0.9	1	0.025	0.05	5 13%	2.5%
1		4	0.975	0.9563	0.9937	0.9	1	0.025	0.05	5.13%	2.5%
10		4	0	0	0	0	0	0	0		100.0%
100		4	0	0	0	0	0	0	0		100.0%
1000		4	0	0	0	0	0	0	0		100.0%

96h Survival Rate Detail

Conc-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Water Contr	1	1	1	1
0.01		1	1	1	1
0.1		1	0.9	1	1
1		1	0.9	1	1
10		0	0	0	0
100		0	0	0	0
1000		0	0	0	0

Acute Fish Survival Test — Pacific EcoRisk

Analysis ID:	04-8940-2504	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	14 May-11 16:33	**Analysis:**	Linear Regression (MLE)	**Official Results:**	Yes

Linear Regression Options

Model Function	Threshold Option	Threshold	Optimized	Pooled	Het Corr	Weighted
Log-Normal [NED=A+B*log(X)]	Control Threshold	1E-08	Yes	No	No	Yes

Regression Summary

Iters	LL	AICc	BIC	Mu	Sigma	Adj R2	F Stat	Critical	P-Value	Decision(α:5%)
21	-10.12	27.45	29.78	0.3534	0.1229	0.396	0.8298	3.16	0.4947	Non-Significant Lack of Fit

Point Estimates

Level	mg/L	95% LCL	95% UCL
EC10	1.269	N/A	N/A
EC15	1.361	N/A	N/A
EC20	1.438	N/A	N/A
EC25	1.507	N/A	N/A
EC40	1.698	N/A	N/A
EC50	1.824	N/A	N/A

Regression Parameters

Parameter	Estimate	Std Error	95% LCL	95% UCL	t Stat	P-Value	Decision(α:5%)
Threshold	0.006333	0.006299	3.479E-05	0.01663	1.004	0.3267	Non-Significant Parameter
Slope	8.136	305	-296.9	313.2	0.02667	0.9790	Non-Significant Parameter
Intercept	2.875	0.628	2.247	3.503	4.579	0.0002	Significant Parameter

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Model	11.2516	11.2516	1	17.08	0.0005	Significant
Lack of Fit	1.680671	0.5602236	3	0.8298	0.4947	Non-Significant
Pure Error	12.15255	0.6751415	18			
Residual	13.83322	0.6587247	21			

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Goodness-of-Fit	Pearson Chi-Sq GOF	13.83	32.67	0.8767	Non-Significant Heterogenity
	Likelihood Ratio GOF	7.246	32.67	0.9976	Non-Significant Heterogenity
Variances	Mod Levene Equality of Variance	0.8261	2.773	0.5475	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.5205	0.9169	<0.0001	Non-normal Distribution
	Anderson-Darling A2 Normality	4.897	2.492	<0.0001	Non-normal Distribution

96h Survival Rate Summary — Calculated Variate(A/B)

Conc-mg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Water Contro	4	1	1	1	0	0	0.0%	0.0%	40	40
0.01		4	1	1	1	0	0	0.0%	0.0%	40	40
0.1		4	0.975	0.9	1	0.025	0.05	5.13%	2.5%	39	40
1		4	0.975	0.9	1	0.025	0.05	5.13%	2.5%	39	40
10		4	0	0	0	0	0		100.0%	0	40
100		4	0	0	0	0	0		100.0%	0	40
1000		4	0	0	0	0	0		100.0%	0	40

Acute Fish Survival Test — **Pacific EcoRisk**

Analysis ID:	04-8940-2504	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	14 May-11 16:33	**Analysis:**	Linear Regression (MLE)	**Official Results:**	Yes

96h Survival Rate Detail

Conc-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Water Control	1	1	1	1
0.01		1	1	1	1
0.1		1	0.9	1	1
1		1	0.9	1	1
10		0	0	0	0
100		0	0	0	0
1000		0	0	0	0

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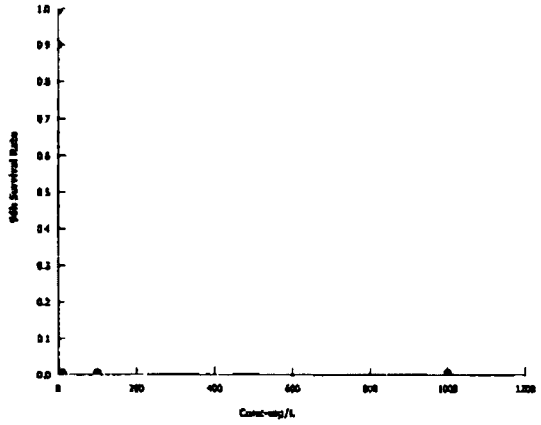
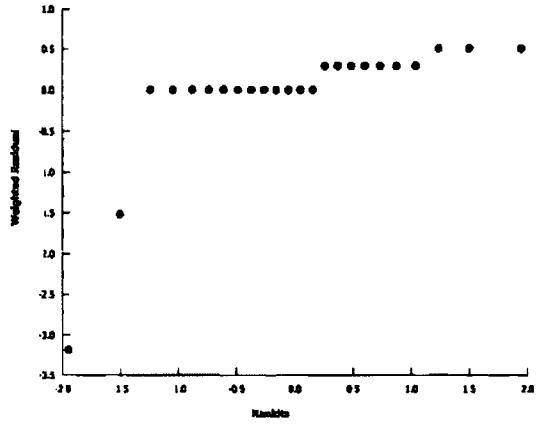
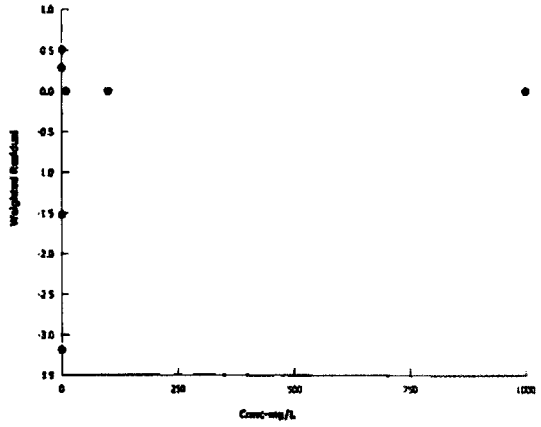
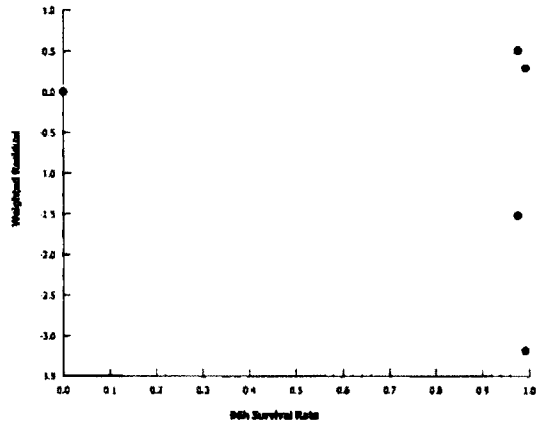








Acute Fish Survival Test				Pacific EcoRisk
Analysis ID:	12-0166-2604	Endpoint: 96h Survival Rate	CETIS Version:	CETISv1.8.0
Analyzed:	14 May-11 16:33	Analysis: Nonparametric-Control vs Treatments	Official Results:	Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run	1	10	3.162		5.38%

Steel Many-One Rank Test

Control	vs	Conc-mg/L	Test Stat	Critical	DF	Ties	P-Value	Decision(α:5%)
Lab Water Control		0.01	18	10	6	1	0.8571	Non-Significant Effect
		0.1	16	10	6	1	0.6450	Non-Significant Effect
		1	16	10	6	1	0.6450	Non-Significant Effect
		10*	10	10	6	0	0.0480	Significant Effect
		100*	10	10	6	0	0.0480	Significant Effect
		1000*	10	10	6	0	0.0480	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	10.42919	1.738198	6	916.2	<0.0001	Significant Effect
Error	0.039839	0.001897095	21			
Total	10.46903	1.740095	27			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	0.8333	3.812	0.5577	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.5824	0.8975	<0.0001	Non-normal Distribution

96h Survival Rate Summary

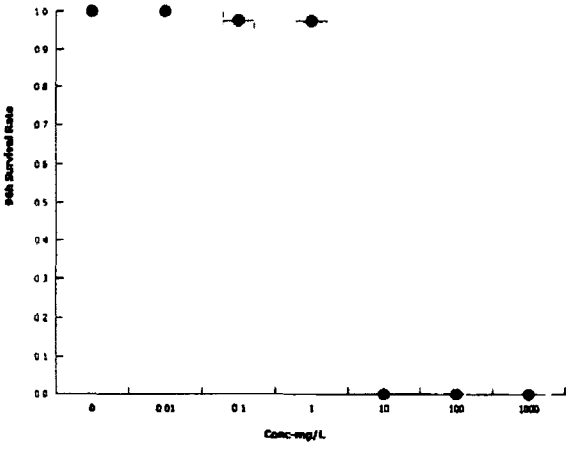
Conc-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Water Contr	4	1	1	1	1	1	0	0	0.0%	0.0%
0.01		4	1	1	1	1	1	0	0	0.0%	0.0%
0.1		4	0.975	0.956	0.994	0.9	1	0.025	0.05	5.13%	2.5%
1		4	0.975	0.956	0.994	0.9	1	0.025	0.05	5.13%	2.5%
10		4	0	0	0	0	0	0	0		100.0%
100		4	0	0	0	0	0	0	0		100.0%
1000		4	0	0	0	0	0	0	0		100.0%

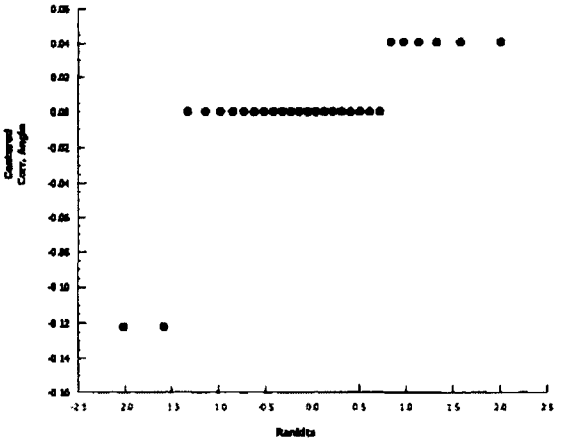
Angular (Corrected) Transformed Summary

Conc-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Water Cont	4	1.412	1.412	1.412	1.412	1.412	0	0	0.0%	0.0%
0.01		4	1.412	1.412	1.412	1.412	1.412	0	0	0.0%	0.0%
0.1		4	1.371	1.34	1.402	1.249	1.412	0.04074	0.08149	5.94%	2.89%
1		4	1.371	1.34	1.402	1.249	1.412	0.04074	0.08149	5.94%	2.89%
10		4	0.1588	0.1588	0.1588	0.1588	0.1588	0	0	0.0%	88.76%
100		4	0.1588	0.1588	0.1588	0.1588	0.1588	0	0	0.0%	88.76%
1000		4	0.1588	0.1588	0.1588	0.1588	0.1588	0	0	0.0%	88.76%

Acute Fish Survival Test					Pacific EcoRisk
Analysis ID:	12-0166-2604	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	14 May-11 16:33	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Graphics





96 Hour Acute Fathead Minnow Toxicity Test

Client: SYRGIS
Test Material: XC-197
Test ID#: 42661 Project #: 18260
Test Date: 4/20/11 Randomization: 4.7.1

Organism Log #: 5733 Age: 5 days
Organism Supplier: Aquatox
Control/Diluent: EPAMH
Control Water Batch: 1386

Treatment (mg/L)	Temp (C)	pH new	pH old	D.O (mg/L) new	D.O (mg/L) old	Conductivity (µS/cm) new	Conductivity (µS/cm) old	# Live Organisms Rep A	Rep B	Rep C	Rep D	SIGN-OFF
Control	~~53~~ 20.1	8.01		7.4		349		10	10	10	10	Test Solution Prep: DE
0.01	20.1	8.00		7.3		350		10	10	10	10	Sample ID: 26313
0.10	20.1	8.02		7.3		349		10	10	10	10	New WQ: YK
1.0	20.1	8.02		7.5		350		10	10	10	10	Initiation Date: 4/20/11
10	20.1	8.02		7.5		351		10	10	10	10	Initiation Time: 1430
100	20.1	7.93		7.4		367		10	10	10	10	Initiation Signoff: DE
1000	20.1	6.96		6.1		532		10	10	10	10	
Meter ID	53A	Ph14		RD03		EC04						
Control	20.0		8.48		8.0		366	10	10	10	10	Count Date: 4/21/11
0.01	20.0		8.39		7.7		362	10	10	10	10	Count Time: 0915
0.10	20.0		8.31		8.3		362	10	10	10	10	Count Signoff: DE
1.0	20.0		8.25		8.0		362	10	10	10	10	Old WQ: YK
10	20.0		8.23		8.3		378 365	10	10	10	10	
100	20.0		8.20		8.0		378	0	0	0	0	
1000	20.0		7.73		7.8		533	0	0	0	0	
Meter ID	53A		Ph14		RD04		EC04	—	—	—	—	
Control	20.5	8.09	8.13	8.1	7.3	360	384	10	10	10	10	Test Solution Prep: DE
0.01	20.5	8.21	8.04	7.8	6.7	359	391	10	10	10	10	Sample ID: 26313
0.10	20.5	8.20	8.01	8.1	6.8	357	376	10	10	10	10	New WQ: JLA
1.0	20.5	8.18	7.96	7.9	7.0	356	372	10	9	10	10	Renewal Date: 4/22/11
10	20.5	8.19	7.98	8.2	6.7	357	370	9	9	9	10	Renewal Time: 1055
100	20.5	—	—	—	—	—	—	—	—	—	—	Renewal Signoff: DE
1000	20.5	—	—	—	—	—	—	—	—	—	—	Old WQ: YK
Meter ID	53A	PH03	Ph14	RD06	RD04	EC06	EC04	—	—	—	—	
Control	20.5		7.92		8.0 7.2		354	10	10	10	10	Count Date: 4.23.11
0.01	20.5		7.88		7.0		355	10	10	10	10	Count Time: 1135
0.10	20.5		7.85		7.1		359	10	9	10	10	Count Signoff: DE
1.0	20.5		7.86		7.2		356	10	9	10	10	Old WQ: NO
10	20.5		7.83		7.2		358	0	0	0	0	
100	—		—		—		—	—	—	—	—	
1000	—		—		—		—	—	—	—	—	
Meter ID	53A		PH03		RD06		EC06	—	—	—	—	
Control	20.4		7.92		8.2		364	10	10	10	10	Termination Date: 4/24/11
0.01	20.4		7.87		7.9		361	10	10	10	10	Termination Time: 1230
0.10	20.4		7.88		8.0		359	10	9	10	10	Termination Signoff: MG
1.0	20.4		7.88		8.1		360	10	9	10	10	Old WQ: SH
10	—		—		—		—	—	—	—	—	
100	—		—		—		—	—	—	—	—	
1000	—		—		—		—	—	—	—	—	
Meter ID	53A		PH03		RD05		EC04	—	—	—	—	

Appendix B

Test Data and Summary of Statistical Analyses for the Evaluation of the Acute Toxicity of the Chemical Product "XC-197" on Fathead Minnows – Follow-Up Definitive Test

CETIS Summary Report

Report Date: 17 May-11 16:44 (p 1 of 1)
Test Code: 42730 | 03-1230-9790

Acute Fish Survival Test — Pacific EcoRisk

Batch ID:	04-6863-3167	Test Type:	Survival (96h)	Analyst:	Kristin Worrell
Start Date:	28 Apr-11 15:15	Protocol:	EPA-821-R-02-012 (2002)	Diluent:	Laboratory Water
Ending Date:	02 May-11 16:40	Species:	Pimephales promelas	Brine:	Not Applicable
Duration:	4d 1h	Source:	Aquatox, AR	Age:	5

Sample ID:	09-3582-5449	Code:	Product	Client:	SYRGIS PCHEM
Sample Date:	28 Apr-11 15:15	Material:	Freshwater	Project:	18260
Receive Date:	28 Apr-11 15:15	Source:	SYRGIS Pchem		
Sample Age:	N/A (21 °C)	Station:	XC-197		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
00-8399-7850	96h Survival Rate	5	10	7.071	11.4%		Steel Many-One Rank Test

Point Estimate Summary

Analysis ID	Endpoint	Level	mg/L	95% LCL	95% UCL	TU	Method
04-5331-4814	96h Survival Rate	EC10	4.964	N/A	N/A		Linear Regression (MLE)
		EC15	5.081	N/A	N/A		
		EC20	5.175	N/A	N/A		
		EC25	5.257	N/A	N/A		
		EC40	5.47	N/A	N/A		
		EC50	5.602	N/A	N/A		

96h Survival Rate Summary

Conc-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Water Contr	4	0.975	0.9563	0.9937	0.9	1	0.025	0.05	5.13%	0.0%
0.5		4	1	1	1	1	1	0	0	0.0%	-2.56%
1		4	1	1	1	1	1	0	0	0.0%	-2.56%
2.5		4	0.975	0.9563	0.9937	0.9	1	0.025	0.05	5.13%	0.0%
5		4	0.875	0.8043	0.9457	0.6	1	0.09465	0.1893	21.63%	10.26%
10		4	0	0	0	0	0	0	0		100.0%
20		4	0	0	0	0	0	0	0		100.0%

96h Survival Rate Detail

Conc-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Water Contr	1	1	1	0.9
0.5		1	1	1	1
1		1	1	1	1
2.5		0.9	1	1	1
5		1	1	0.6	0.9
10		0	0	0	0
20		0	0	0	0

Acute Fish Survival Test — **Pacific EcoRisk**

Analysis ID:	04-5331-4814	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	14 May-11 16:43	**Analysis:**	Linear Regression (MLE)	**Official Results:**	Yes

Linear Regression Options

Model Function	Threshold Option	Threshold	Optimized	Pooled	Het Corr	Weighted
Log-Normal [NED=A+B*log(X)]	Control Threshold	0.025	Yes	No	No	Yes

Regression Summary

Iters	LL	AICc	BIC	Mu	Sigma	Adj R2	F Stat	Critical	P-Value	Decision(α:5%)
19	-20.95	49.1	51.43	-0.5435	0.04097	0.4111	0.573	3.16	0.6400	Non-Significant Lack of Fit

Point Estimates

Level	mg/L	95% LCL	95% UCL
EC10	4.964	N/A	N/A
EC15	5.081	N/A	N/A
EC20	5.175	N/A	N/A
EC25	5.257	N/A	N/A
EC40	5.47	N/A	N/A
EC50	5.602	N/A	N/A

Regression Parameters

Parameter	Estimate	Std Error	95% LCL	95% UCL	t Stat	P-Value	Decision(α:5%)
Threshold	0.0125	0.008783	0.003717	0.02128	1.423	0.1694	Non-Significant Parameter
Slope	24.41	1100	-1076	1124	0.02219	0.9825	Non-Significant Parameter
Intercept	-13.27	768.9	-782.1	755.6	-0.01725	0.9864	Non-Significant Parameter

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Model	14.98285	14.98285	1	18.06	0.0004	Significant
Lack of Fit	1.518986	0.5063285	3	0.573	0.6400	Non-Significant
Pure Error	15.90452	0.8835844	18			
Residual	17.4235	0.8296907	21			

Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Goodness-of-Fit	Pearson Chi-Sq GOF	17.42	32.67	0.6851	Non-Significant Heterogenity
	Likelihood Ratio GOF	15.44	32.67	0.8005	Non-Significant Heterogenity
Variances	Mod Levene Equality of Variance	1.562	2.773	0.2209	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.6205	0.9169	<0.0001	Non-normal Distribution
	Anderson-Darling A2 Normality	4.277	2.492	<0.0001	Non-normal Distribution

96h Survival Rate Summary — Calculated Variate(A/B)

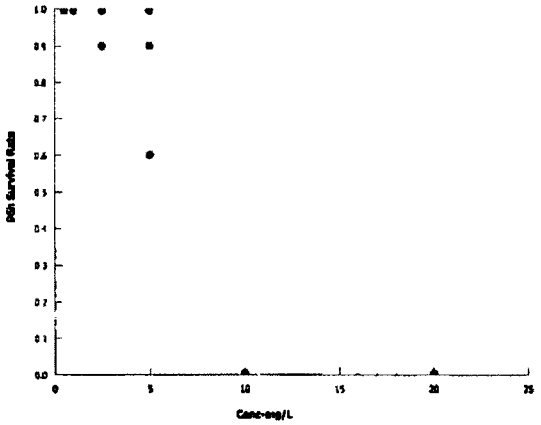
Conc-mg/L	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Lab Water Contro	4	0.975	0.9	1	0.025	0.05	5.13%	0.0%	39	40
0.5		4	1	1	1	0	0	0.0%	-2.56%	40	40
1		4	1	1	1	0	0	0.0%	-2.56%	40	40
2.5		4	0.975	0.9	1	0.025	0.05	5.13%	0.0%	39	40
5		4	0.875	0.6	1	0.09465	0.1893	21.63%	10.26%	35	40
10		4	0	0	0	0	0		100.0%	0	40
20		4	0	0	0	0	0		100.0%	0	40

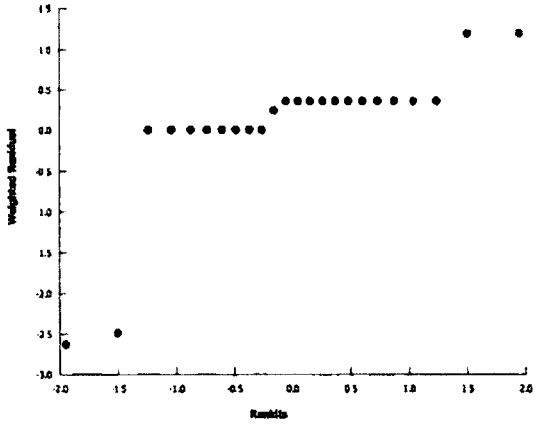
Acute Fish Survival Test					Pacific EcoRisk
Analysis ID:	04-5331-4814	Endpoint:	96h Survival Rate	CETIS Version:	CETISv1.8.0
Analyzed:	14 May-11 16:43	Analysis:	Linear Regression (MLE)	Official Results:	Yes

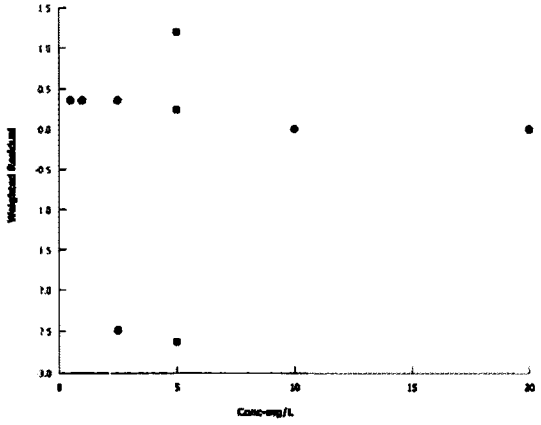
96h Survival Rate Detail

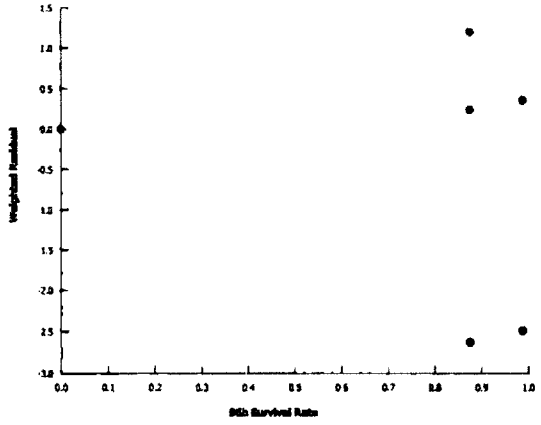
Conc-mg/L	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Water Control	1	1	1	0.9
0.5		1	1	1	1
1		1	1	1	1
2.5		0.9	1	1	1
5		1	1	0.6	0.9
10		0	0	0	0
20		0	0	0	0

Graphics Log-Normal [NED=A+B*log(X)]









Acute Fish Survival Test — Pacific EcoRisk

Analysis ID: 00-8399-7850 Endpoint: 96h Survival Rate CETIS Version: CETISv1.8.0
Analyzed: 14 May-11 16:43 Analysis: Nonparametric-Control vs Treatments Official Results: Yes

Data Transform	Zeta	Alt Hyp	MC Trials	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	0	C > T	Not Run	5	10	7.071		11.4%

Steel Many-One Rank Test

Control	vs	Conc-mg/L	Test Stat	Critical	DF	Ties	P-Value	Decision(α:5%)
Lab Water Control		0.5	20	10	6	1	0.9616	Non-Significant Effect
		1	20	10	6	1	0.9616	Non-Significant Effect
		2.5	18	10	6	2	0.8571	Non-Significant Effect
		5	15.5	10	6	2	0.5790	Non-Significant Effect
		10*	10	10	6	0	0.0480	Significant Effect
		20*	10	10	6	0	0.0480	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	8.343235	1.390539	6	130.2	<0.0001	Significant Effect
Error	0.2243611	0.01068386	21			
Total	8.567596	1.401223	27			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	2.402	3.812	0.0633	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.6749	0.8975	<0.0001	Non-normal Distribution

96h Survival Rate Summary

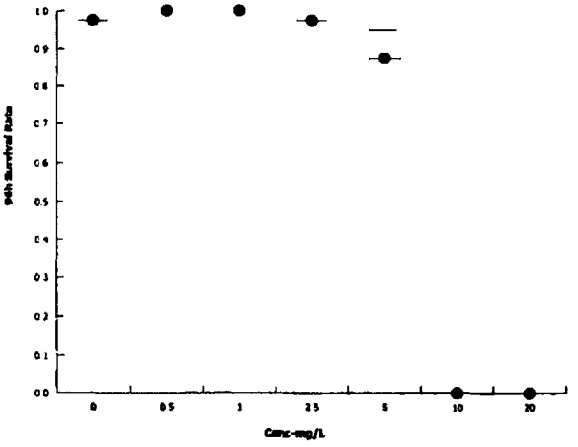
Conc-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Water Contr	4	0.975	0.956	0.994	0.9	1	0.025	0.05	5.13%	0.0%
0.5		4	1	1	1	1	1	0	0	0.0%	-2.56%
1		4	1	1	1	1	1	0	0	0.0%	-2.56%
2.5		4	0.975	0.956	0.994	0.9	1	0.025	0.05	5.13%	0.0%
5		4	0.875	0.803	0.947	0.6	1	0.09465	0.1893	21.63%	10.26%
10		4	0	0	0	0	0	0	0		100.0%
20		4	0	0	0	0	0	0	0		100.0%

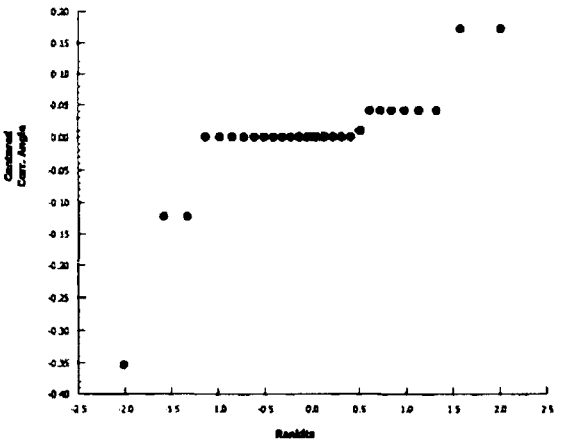
Angular (Corrected) Transformed Summary

Conc-mg/L	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Water Cont	4	1.371	1.34	1.402	1.249	1.412	0.04074	0.08149	5.94%	0.0%
0.5		4	1.412	1.412	1.412	1.412	1.412	0	0	0.0%	-2.97%
1		4	1.412	1.412	1.412	1.412	1.412	0	0	0.0%	-2.97%
2.5		4	1.371	1.34	1.402	1.249	1.412	0.04074	0.08149	5.94%	0.0%
5		4	1.24	1.145	1.334	0.8861	1.412	0.124	0.248	20.0%	9.59%
10		4	0.1588	0.1588	0.1588	0.1588	0.1588	0	0	0.0%	88.42%
20		4	0.1588	0.1588	0.1588	0.1588	0.1588	0	0	0.0%	88.42%

Acute Fish Survival Test					**Pacific EcoRisk**
Analysis ID:	00-8399-7850	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.0
Analyzed:	14 May-11 16:43	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Graphics





96 Hour Acute Fathead Minnow Toxicity Test

5 DAYS

Client: SYRGIS — Organism Lot #: 5783 — Age: 4 DAYS DW

Test Material: XC 197 — Organism Supplier: AQUATOX

Test ID#: 42730 — Project #: 18260 — Control Diluent: EPAMH

Test Date: 4/25/11 — Randomization: 4.7.10 — Control Water Batch: 1355

Feeding Time: 1200 — Initials: MG — Feeding Time: 0900 — Initials: JW

Treatment (mg L)	Temp (°C)	pH new	pH old	D.O. (mg L) new	D.O. old	Conductivity (µS/cm) new	Conductivity old	# Live Organisms Rep A	Rep B	Rep C	Rep D	SIGN-OFF
Control	19.6	8.11		8.0		345		10	10	10	10	Test Solution Prep:
0.5	19.6	8.08		7.8		346		10	10	10	10	Sample ID: 26313
1	19.6	8.05		7.4		347		10	10	10	10	New WQ: MF
2.5	19.6	8.05		7.0		347		10	10	10	10	Initiation Date: 4/26/11
5	19.6	8.04		6.7		348		10	10	10	10	Initiation Time: 1515
10	19.6	8.03		7.0		349		10	10	10	10	Initiation Signed: JW
20	19.6	8.01		7.0		352		10	10	10	10	
Meter ID	60A	PH03		RD04		EC04						
Control	19.4		8.11		7.6		365	10	10	10	10	Count Date: 4/29/11
0.5	19.4		8.09		7.9		365	10	10	10	10	Count Time: 1030
1	19.4		8.08		7.4		365	10	10	10	10	Count Signed: MG
2.5	19.4		8.08		7.9		366	9	10	10	10	Old WQ: cc
5	19.4		8.08		7.3		366	10	10	10	10	
10	19.4		8.07		7.9		367	10	10	10	10	
20	19.4		8.10		7.6		369	3	2	2	0	
Meter ID	60A		PH03		RD04		EC04	—	—	—	—	
Control	19.4	8.16	7.76	8.8	7.3	361	366	10	10	10	9	Test Solution Prep:
0.5	19.4	8.12	7.81	8.8	7.6	361	369	10	10	10	10	Sample ID: 26313
1	19.4	8.10	7.81	8.7	7.1	362	372	10	10	10	10	New WQ: MF
2.5	19.4	8.10	7.83	~~8.7~~ 8.6	7.2	362	367	9	10	10	10	Renewal Date: 4/30/11
5	19.4	8.09	7.79	8.6	6.6	362	368	10	10	10	10	Renewal Time: 1315
10	19.4	8.07	7.80	8.6	7.5	363	370	10	10	10	9	Renewal Signed: JW
20	19.4	8.04	7.92	8.6	~~8.7~~ 7.7	365	375	2	1	0	—	Old WQ: cc
Meter ID	~~PH03~~ 60A	PH12	pH12	RD04	RD04	EC06	EC06	—	—	—	—	
Control	19.5		7.99		7.9		373	10	10	10	9	Count Date: 5/1/11
0.5	19.5		7.95		7.8		362	10	10	10	10	Count Time: 1030
1	19.5		7.93		7.8		359	10	10	10	10	Count Signed: MF
2.5	19.5		7.92		7.7		357	9	10	10	10	Old WQ: SH
5	19.5		7.92		7.7		357	10	10	9	10	
10	19.5		7.88		7.6		363	5	5	5	3	
20	19.5		7.94		7.8		362	0	0	—	—	
Meter ID	60A		PH12		RD06		EC04	—	—	—	—	
Control	19.2		7.76		6.2		367	10	10	10	9	Termination Date: 5/2/11
0.5	19.2		7.78		6.4		367	10	10	10	10	Termination Time: 1640
1	19.2		7.74		6.6		369	10	10	10	10	Termination Signed: MF
2.5	19.2		7.76		6.7		369	9	10	10	10	Old WQ: MF
5	19.2		7.74		6.8		368	10	10	6	9	
10	19.2		7.80		6.8		371	0	0	0	0	
20 MF	~~19.2~~		—		—		—	—	—	—	—	
Meter ID	60A		PH12		RD04		EC04	—	—	—	—	

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